

ABSTRACT

An iterative multistage detection system and method for orthogonally multiplexing K channels onto a signal processing chain using N orthogonal sequences of length 5 N . The K channels include a first set of N channels and a second set of M channels (the M channels being separate and distinct from the N channels), where $K = N + M$. In a first iteration, interference from the first set of N channels imparted on the second set of M channels is removed from the multiplexed signal, thereby enabling the symbol values associated with the second set of M channels to be reliably estimated. In a second iteration, interference from the second set of 10 M channels imparted on the first set of N channels is removed from the first set of N channels, thereby enabling the symbol values associated with the first set of N channels to be reliably estimated.

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